IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants: Moon et al.	Art Unit: 2624
Serial Number: 10/081,417	Examiner: Mackowey, Anthony M.
Filing Date: 2/22/2002	Docket No.: CHA920010020US1 (IBMC-0034)
Title: MICR-BASED OPTICAL CHARACTER RECOGNITION SYSTEM AND METHOD	Confirmation No.: 1023

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BRIEF OF APPELLANT

This is an appeal from the Final Rejection dated July 31, 2006, rejecting claims 1-3, 5-10, 12-16 and 18-22. The requisite fee set forth in 37 C.F.R. §1.17 (c) has been submitted on October 31, 2006.

REAL PARTY IN INTEREST

International Business Machines Corporation is the real party in interest.

RELATED APPEALS AND INTERFERENCES

There is no related appeal or interference.

STATUS OF CLAIMS

As filed, this case includes claims 1-22. Claims 1-3, 5-10, 12-16 and 18-22 remain pending, stand rejected, and form the basis of this appeal. Claims 4, 11 and 17 have been cancelled. No claim has been allowed. The rejections of claims 1-3, 5-10, 12-16 and 18-22 are being appealed.

STATUS OF AMENDMENTS

No amendment has been filed following the Final Rejection of July 31, 2006. The proposed after-final amendments to the claims were not entered for allegedly raising new matter.

SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent claim 1 of the present invention provides a character recognition system (10 of FIG. 1), comprising: an optical character reader system (14 of FIG. 1) for collecting character data by electro-optically scanning printed characters (page 5, lines 9-15); a conversion system (18 of FIG. 1) for converting the character data to a Magnetic Ink Character Recognition (MICR) format from a non-MICR format (page 5, lines 16-18); and a recognition engine (26 of FIG. 1) for interpreting the converted character data using a MICR algorithm (28 of FIG. 1) (page 6, lines 11-14); wherein the conversion system (18) scales the character data to a pel density associated with data obtained by a character recognition device using a multigap MICR read head (page 5, lines 11-14 for OCR data pel density; page 5, line 20 – page 6, line 1 for the scaling and the MICR data pel density).

Independent claim 8 of the present invention provides a method for performing character recognition, comprising: collecting character data by electro-optically scanning printed

characters (page 5, lines 9-15); converting the character data to a Magnetic Ink Character Recognition (MICR) format from a non-MICR format (page 5, lines 16-18); and interpreting the converted character data using a MICR algorithm (28 of FIG. 1) (page 6, lines 11-14); wherein the converting step scales the character data to a pel density associated with data obtained by a character recognition device using a multigap MICR read head (page 5, lines 11-14 for OCR data pel density; page 5, line 20 – page 6, line 1 for the scaling and the MICR data pel density).

Independent claim 15 of the present invention provides a program product stored on a computer readable medium for performing character recognition (page 8, lines 3-6), comprising: means (OCR data 16 is input into conversion system 18, as shown in FIG. 1) for accessing character data collected by an electro-optical scanning system (page 5, lines 9-15); means (18 of FIG. 1) for converting the character data to a spatial resolution and density as if captured by a Magnetic Ink Character Recognition (MICR) read head (page 5, lines 16-18); and means (26 of FIG. 1) for interpreting the converted character data using a MICR algorithm (28 of FIG. 1) (page 6, lines 11-14); wherein the converting means (18) scales the character data to a pel density associated with data obtained by a character recognition device using a multigap MICR read head (page 5, lines 11-14 for OCR data pel density; page 5, line 20 – page 6, line 1 for the scaling and the MICR data pel density).

Independent claim 21 of the present invention provides a multi-voting character recognition engine (50 of FIG. 2) for analyzing an inputted set of printed characters, comprising: a plurality of character recognition systems (10, 42, 44 of FIG. 2) (page 7, lines 1-2), wherein each character recognition system independently analyzes the inputted set of printed characters (page 7, lines 2-3), and wherein one of the character recognition systems (10 of FIG. 2) includes: an optical character reader system (14 of FIG. 1) for collecting character data by electro-optically

scanning printed characters (page 5, lines 9-15); a conversion system (18 of FIG. 1) for converting the character data to a Magnetic Ink Character Recognition (MICR) format (page 5, lines 16-18); a recognition engine (26 of FIG. 1) for interpreting the converted character data using a MICR algorithm (28 of FIG. 1) (page 6, lines 11-14); and a voting system (46 of FIG. 2) for combining results from each of the plurality of character recognition systems and determining a recognized set of characters (page 7, lines 6-8); wherein the conversion system scales the character data to a pel density associated with data obtained by a character recognition device using a multigap MICR read head (page 5, lines 11-14 for OCR data pel density; page 5, line 20 – page 6, line 1 for the scaling and the MICR data pel density).

GROUNDS OF REJECTION AND OBJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 1-3, 5-10, 12-16 and 18-22 comply with the written description requirement and the enablement requirement under 35 U.S.C. 112, first paragraph.

2. Whether the amendment to the specification filed on 5/8/06 introduces new matter.

ARGUMENTS

1. The amendment to the specification filed on 5/8/06 does not introduce new matter

Appellants amended the specification on 5/8/06 from "a set of MICR format character data 24 that has the equivalent specifications of data obtained by a multigap MICR read head" to "a set of MICR format character data 24 that has the equivalent specifications of data obtained by, e.g., a 3890 system of IBM corporation that uses a multigap MICR read head." The Examiner asserts that this amendment introduces new matter. (Final Office Action of 7/31/06,

hereinafter OA, at page 3). Appellants submit that in making the above assertion, the Examiner unfoundedly narrows the scope of the data obtained by, and the scope of the meaning of, a magnetic read head as used in the current invention because the Examiner does not consider the common practice in the technology field and the disclosure of the current application as a whole.

The Examiner basically argues that "the data obtained by the system in its entirety is not equivalent to data obtained only by the magnetic read head[,]" because the magnetic read head only obtains electrical pulse. (OA at 3). Appellants disagree because the data obtained by a magnetic read head, as used in the current invention, is inherently in a digital form, which follows the well known usage/practice in the art. For example, the disclosure of the current application clearly indicates that the data obtained by a magnetic read head is capable of being read by a MICR-based algorithm to identify E13B characters. (*See* page 2, lines 1-2, "[o]nce the characters are magnetically read, well established MICR-based algorithm are implemented to identify each E13B character.") As is well known in the art, a MICR-based algorithm can only recognize digitalized data, not electrical pulse. Moreover, the original disclosure provides a pel density equivalent to data captured by an actual multigap MICR read head as "approximately 0.33 millimeters/pixel in the horizontal dimension and 0.43 millimeter/pixel in the vertical dimension." (The specification of the invention at page 5, line 21 to page 6, line 1). Those pel density characteristics are clearly for digital data, instead of electronic signals/waveforms. As such, the original disclosure of the application, considered as a whole, already makes it clear that the data obtained by a multigap read head is inherently digital data capable of being recognized by a MICR-based algorithm. As such, the amendment to the specification does not introduce any new matter, and only clarifies the existing features. Appellants submit that in asserting that a MICR read head only obtains electronic signals/waveforms, the Examiner unfoundedly ignores

the whole context of the disclosure and picks an arbitrary interpretation that is inconsistent to the original disclosure.

In the Advisory Action (hereinafter AA), the Examiner asserts that Kruppa (USPN 6,243,504, FIG. 5) shows an A/D converter to convert the image obtained by a magnetic read head. Appellants submit that just because Kruppa shows the details of the magnetic read head system, the current invention does not need to. As is widely recognized in the field of electrical engineering, an A/D converter has long become a standard feature in data collecting and processing systems/methods, and such a feature is unnecessary for an understanding of the current invention. As used in the current invention, a multigap MICR read head inherently include a conversion system, e.g., A/D converter, such that the data captured by an actual multigap MICR read head is capable of being recognized by a MICR-based algorithm. The current invention simplifies the disclosure because the A/D conversion features are well known in the art, e.g., Kruppa.

2. Claims 1-3, 5-10, 12-16 and 18-22 comply with the written description requirement and the enablement requirement under 35 U.S.C. 112, first paragraph

2-1. With respect to the written description requirement, as the amendment to the specification of 5/8/06 does not introduce new matter to the disclosure and needs not to be cancelled, the rejection of claims 1-3, 5-10, 12-16 and 18-22 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is defective. In addition, Appellants submit that even if the amendment to the specification were cancelled for sake of argumentation, claims 1-3, 5-10, 12-16 and 18-22 still would meet the written description requirement because "a character recognition device using a multigap MICR read head" (claim

1) just recites the inherent meaning of "a multigap MICR read head" as used in the invention, as discussed above. In addition, literally (i.e., without consideration of the scope or meaning of the terms/phases), a multigap MICR read head can be described as a character recognition device using a multigap MICR read head because the device could be the multigap MICR read head. In view of the foregoing, Appellants submit that the rejection of claims 1-3, 5-10, 12-16 and 18-22 for failing to comply with the written description requirement is defective, and should be reversed.

2-2. With respect to the enablement requirement, the Examiner basically argues that "[e]ven if the data obtained by the magnetic read head and the OCR scanner were digitalized … the digital data would not be equivalent because the real world characteristics they represent are not the same." (OA at 5). Appellants respectfully disagree. As is known in the art, both the MICR read head devices and the optical imaging devices, e.g., an OCR scanner, generate two dimensional bitmaps of the MICR characters. The bitmap generated by the OCR scanner is generally with a different resolution than the bitmap generated by the MICR read head device. In addition, the bitmap generated by the OCR scanner may be saved in a different format, e.g., a grey scale format, than that generated by the MICR read head device. Please note that the MICR format data is in black and white format with a higher pel density than the OCR data. (*See* the current specification at page 5, line 8 to page 6, line 10.) Conversion system 18 of the current invention converts the OCR format data to black and white format, and scales the data to a resolution equivalent to the data obtained by a character recognition device using a multigap MICR read head, i.e., MICR data. As disclosed in the specification, methods of scaling are disclosed by another patent application assigned to IBM, which is incorporated in the current application as a

reference. (*See* the current application at page 6, lines 1-6.) In addition, the current specification discloses examples of the OCR data resolution (e.g., 200-600 dpi) and the resolution of the data obtained by a multigap MICR read head (e.g., 0.33 millimeters/pixel in the horizontal dimension and 0.43 millimeters/pixel in the vertical dimension). (*See* the current specification at page 5, line 20 to page 6, line 1.) As such, the disclosure of the current application is sufficient to enable a person of ordinary skill in the art to implement the invention without undue experiments. In view of the foregoing, Appellants submit that the rejection under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement is defective, and should be reversed.

The assertion of the Examiner is basically that the data obtained by MICR read head is electrical pulse and the data obtained by an OCR scanner is pixel data. (*See*, e.g., AA at page 2.) The Examiner asserts that the signal obtained by a multigap MICR read head are pulses that correspond to edge information of E13B character, and that the OCR format data cannot be converted to the data recognized by a conventional MICR recognition engine. (*See* Id.) Appellants disagree. As discussed above, the multigap MICR read head used in the disclosure inherently includes a system to convert electrical signals to digital data to be recognized by a MICR-based algorithm, and that the data obtained by a multigap read head inherently is such digital data to be recognized by a MICR-based algorithm. In addition, as is well known in the art, the data recognized by a conventional MICR recognition engine with a MICR-based algorithm is in black and white format and is with a resolution approximately 0.33 millimeters/pixel in the horizontal dimension and 0.43 millimeters/pixel in the vertical dimension. The current specification discloses how to convert OCR format data to such MICR format data, as discussed above. Appellants submit that the electronic pulse/edge information

assertion made by the Examiner is inconsistent with the well known and generally accepted meaning of MICR format data.

As additional support to the above arguments, Appellants respectfully presents raw OCR image and the scaled OCR image as evidence included in the evidence appendix. Evidence A shows un-scaled (raw) optical image of MICR character "2". Evidence B shows five versions of the scaled images 401-405 generated from the raw image by the current invention. As shown in evidence B, the scaled images 402, 403 and 404 are approximately identical to the MICR image of "2".

Moreover, Appellants submit that the Examiner makes inconsistent statements regarding OCR data and MICR data by insisting that MICR data is electrical pulse and OCR data is pixel data. Appellants submit that it is well known in the art that the signals obtained by an optical image sensor, e.g., that in an OCR scanner, is also electrical pulses. An OCR scanner also needs to include an A/D converter to generate the pixel data. If the Examiner admits that OCR data is pixel data, it is illogic to insist that MICR data is electrical pulses.

In view of the foregoing, Appellants submit that the rejection of claims 1-3, 5-10, 12-16 and 18-22 for failing to comply with the enablement requirement is defective, and should be reversed.

The dependent claims are believed allowable for the same reason as stated above, as well as for their own additional features.

In view of the foregoing, Appellant submits that the final rejection is defective, and should be reversed.

Respectfully submitted,

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CLAIMS APPENDIX

1. A character recognition system, comprising:

an optical character reader system for collecting character data by electro-optically scanning printed characters;

a conversion system for converting the character data to a Magnetic Ink Character Recognition (MICR) format from a non-MICR format; and

a recognition engine for interpreting the converted character data using a MICR algorithm;

wherein the conversion system scales the character data to a pel density associated with data obtained by a character recognition device using a multigap MICR read head.

2. The character recognition system of claim 1, wherein the optical character reader system scans at a pel density in a range of approximately 200 to 600 dpi.

3. The character recognition system of claim 1, wherein the character data is stored in a grey scale image format.

5. The character recognition system of claim 1, wherein the conversion system scales the character data to approximately 0.33 millimeters/pixel in a horizontal dimension and 0.43 millimeters/pixel in a vertical dimension.

6. The character recognition system of claim 3, wherein the conversion system converts the grey scale image format to a black and white image format.

7. The character recognition system of claim 1, wherein the printed characters are printed in an E13B font.

8. A method for performing character recognition, comprising:

collecting character data by electro-optically scanning printed characters;

converting the character data to a Magnetic Ink Character Recognition (MICR) format from a non-MICR format; and

interpreting the converted character data using a MICR algorithm;

wherein the converting step scales the character data to a pel density associated with data obtained by a character recognition device using a multigap MICR read head.

9. The method of claim 8, wherein the character data is scanned at a pel density in a range of approximately 200 to 600 dpi.

10. The method of claim 8, wherein the collection step stores the character data in a grey scale image format.

12. The method of claim 8, wherein the converting step scales the character data to approximately 0.33 millimeters/pixel in a horizontal dimension and 0.43 millimeters/pixel in a vertical dimension.

13. The method of claim 10, wherein the converting step converts the grey scale image format to a black and white image format.

14. The method of claim 8, wherein the printed characters are printed in an E13B font.

15. A program product stored on a computer readable medium for performing character recognition, comprising:

means for accessing character data collected by an electro-optical scanning system;

means for converting the character data to a spatial resolution and density as if captured by a Magnetic Ink Character Recognition (MICR) read head; and

means for interpreting the converted character data using a MICR algorithm;

wherein the converting means scales the character data to a pel density associated with data obtained by a character recognition device using a multigap MICR read head.

16. The program product of claim 15, wherein the character data comprises a pel density in a range of approximately 200 to 600 dpi.

18. The program product of claim 15, wherein the converting means scales the character data to approximately 0.33 millimeters/pixel in a horizontal dimension and 0.43 millimeters/pixel in a vertical dimension.

19. The program product of claim 15, wherein the converting means converts a grey scale image format to a black and white image format.

20. The program product of claim 15, wherein the character data collected by the electro-optical scanning system comprises characters printed in an E13B font.

21. A multi-voting character recognition engine for analyzing an inputted set of printed characters, comprising:

a plurality of character recognition systems, wherein each character recognition system independently analyzes the inputted set of printed characters, and wherein one of the character recognition systems includes:

an optical character reader system for collecting character data by electro-optically scanning printed characters;

a conversion system for converting the character data to a Magnetic Ink Character Recognition (MICR) format;

a recognition engine for interpreting the converted character data using a MICR algorithm; and

a voting system for combining results from each of the plurality of character recognition systems and determining a recognized set of characters;

wherein the conversion system scales the character data to a pel density associated with data obtained by a character recognition device using a multigap MICR read head.

22. The multi-voting character recognition engine of claim 21, wherein the inputted set of printed characters are printed in an E13B font.

EVIDENCE APPENDIX

Please accept attached evidence A and B.

RELATED PROCEEDINGS APPENDIX

There is no related proceeding.

CERTIFICATE OF SERVICES

There is no other party to this appeal proceeding.